

CLAIMS

We claim:

1. An isolated polynucleotide which encodes a mammalian Zneul polypeptide wherein said polynucleotide encodes a polypeptide selected from the group SEQ ID NOs: 2-3, 8, 9, 11-16, and 19-24 or a polypeptide which is at least 90% identical to the polypeptides of said group and which retain the activity of said polypeptides.

2. An isolated polynucleotide which encodes a peptide or polypeptide having at least 15 amino acid residues comprised of an epitope-bearing portion of a polypeptide of SEQ ID NOs: 2-3, 8, 9, 11-16, and 19-24 or a polypeptide which is at least 90% identical to said polypeptides.

3. The isolated polynucleotide of claim 2 wherein the peptide or polypeptide is selected from the group consisting of SEQ ID NOs: 2-3, 8, 9, 11-16, and 19-24 or a polypeptide which is at least 90% identical to said polypeptides.

4. The polynucleotide of claim 2 wherein the peptide or polypeptide is fused to a carrier polypeptide or other carrier molecule.

5. An expression vector comprising the following operably linked elements:

a transcription promoter;

a DNA segment which encodes a Zneul polypeptide or a peptide or polypeptide which contains an epitope-bearing region of a Zneul polypeptide; and

a transcription terminator.

6. An expression vector comprising the following operably linked elements:

(a) a transcription promoter;

(b) a DNA segment encoding a chimeric polypeptide, wherein said chimeric polypeptide consists essentially of a first portion and a second portion joined by a peptide bond, said first portion being comprised of a mammalian polypeptide, said polypeptide being the amino acid sequences of SEQ ID NOS: 2-3, 8, 9, 11-16, and 19-24 and said second portion being a second polypeptide or protein.

(c) a transcription terminator.

7. An isolated Zneul polypeptide selected from the group of amino acid sequences consisting of SEQ ID NOS: 2-3, 8, 9, 11-16, and 19-24 or a polypeptide which is at least 90% identical to said polypeptides.

8. An isolated peptide or polypeptide having at least 15 amino acid residues comprised of an epitope-bearing portion of a polypeptide of SEQ ID NOS: 2-3, 8, 9, 11-16, and 19-24 or is at least 90% identical to said epitope bearing portion.

9. The isolated peptide or polypeptide of claim 8 wherein the epitope-bearing portion is selected from the group of amino acid sequence consisting of SEQ ID NOS: 20-23 or a peptide or polypeptide which is at least 90% identical to said epitope bearing portion.

10. An antibody, antibody fragment or single-chain antibody that specifically binds to a mammalian polypeptide, said polypeptide being defined by the amino acid sequences of SEQ ID NOS: 2-3, 8, 9, 11-16, and 19-24.

11. An antibody of claim 10 wherein said antibody is either monoclonal or polyclonal.

12. The antibody, antibody fragment or single-chain antibody of claim 10 wherein said antibody, antibody fragment or single-chain antibody is humanized.

13. A method for producing an antibody which binds to a peptide or polypeptide defined by SEQ ID NOS: 2-3,8, 9, 11-16, and 19-24 or to a peptide or polypeptide which is at least 90% identical to said peptide or polypeptide comprising inoculating an animal with said peptide or polypeptide or with a nucleic acid which encodes said peptide or polypeptide, wherein said animal produces antibodies to said peptide or polypeptide; and

isolating said antibody.

14. The antibody of claim 13 wherein said antibody is either a polyclonal or monoclonal antibody.

15. An anti-idiotypic antibody, anti-idiotypic antibody fragment or anti-idiotypic single-chain antibody which binds to an antibody, an antibody fragment or single-chain antibody of peptide or polypeptide defined by SEQ ID NOS: 2-3,8, 9, 11-16, and 19-24 or to a peptide or polypeptide which is at least 90% identical to said peptide or polypeptide